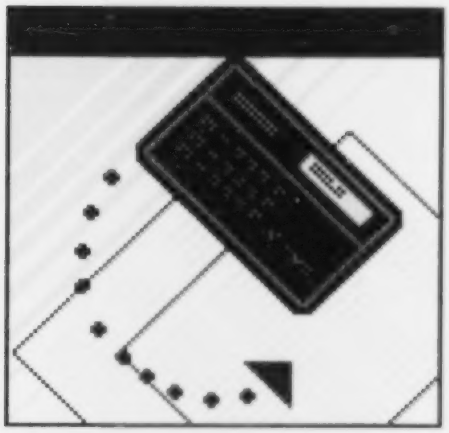
# 2005/2006

# REGIONAL HEALTH AUTHORITY GLOBAL FUNDING

*Methodology and Funding Manual*



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# EXECUTIVE SUMMARY

This manual shows how 2005/2006 Regional Health Authority Global Funding ($5.4 billion) was allocated (note: in addition to Global Funding, provincial funding for RHAs also includes some Non-Base funding).

The **population funding formula** continues to be the starting point and main driver for distributing funding to RHAs. The formula is used to distribute $4.3 billion (80.4 per cent) of total RHA Global Funding. The major objective of population funding is equity – each RHA receives the same population funding rates.

The simplest way to distribute funding on a population basis would be straight per capita funding. However, since different types of people have differing levels of health care needs, the population formula develops funding rates for 124 types of individuals as defined by their age, gender and socio-economic characteristics. These rates (see page 10) were based on observed health care expenditure data from 2003/2004, grossed up to the funding year. The same 124 funding capitation rates are applied to each region's projected population for the funding year to determine the regional allocations ($4.3 billion). Overall per capita funding varies by region only because of different population mixes - regions with a higher proportion of seniors, for example, get higher overall average per capita funding because the funding rates for seniors are the highest. Variations in funding growth rates from the previous year are driven primarily by the different rates of population growth across regions.

Since formula funding is allocated solely according to the population which resides in a region, **import-export adjustments** are made to the formula allocations to compensate for health care services provided to individuals outside of their home region. The total value of identified import-export activity for 2005/2006 is $390.3 million, based on observed service patterns from 2003/2004, grossed up to the funding year. However, the summed adjustments over all nine regions is zero, as total imports (positive funding adjustments) equal total exports (negative funding adjustments). Import-export for Health Link is calculated for the first time in 2005/2006 funding.

The remainder of RHA Global Funding is comprised of **non-formula funding adjustments** ($1.0 billion). This includes Province Wide Services funding ($509 million), Mental Health funding ($255.9 million) and Minimum Guarantee adjustments. Each RHA is guaranteed a minimum 4 percent funding increase, prior to Province Wide Services and the new Long Term Care funding, from previous year comparable funding. This requires funding top-ups totaling $35 million for East Central, Aspen and Peace Country, the money for which is re-distributed on a proportional basis from the other six RHAs (negative adjustments).

# 2005/2006 Regional Health Authority Global Funding

**($ thousands)**

| RHA | Comparable 2004/2005 Forecast | Population Formula | Import-Export | Funding Adjustments | 4% Minimum Guarantee Adjustment | LTC Hours | Province Wide Services | TOTAL 2005/2006 Funding | % Change |
|---|---|---|---|---|---|---|---|---|---|
| R1 | 226,468 | 250,539 | (11,541) | 12,479 | (2,064) | 360 | - | 249,773 | 10.3 |
| R2 | 125,583 | 149,488 | (16,876) | 7,713 | (1,152) | 401 | - | 139,574 | 11.1 |
| R3 | 1,681,432 | 1,454,442 | 53,883 | 148,014 | (13,593) | 3,084 | 236,910 | 1,882,740 | 12.0 |
| R4 | 417,031 | 420,905 | (54,257) | 78,740 | (3,655) | 1,028 | - | 442,760 | 6.2 |
| R5 | 170,365 | 182,682 | (33,039) | 6,283 | 12,627 | 761 | 9,200 | 178,514 | 4.8 |
| R6 | 1,787,535 | 1,380,867 | 160,365 | 201,238 | (14,300) | 3,380 | 262,717 | 1,994,267 | 11.6 |
| R7 | 185,406 | 233,267 | (66,539) | 15,556 | 10,537 | 722 | - | 193,544 | 4.4 |
| R8 | 172,958 | 164,876 | (17,901) | 20,757 | 12,145 | 264 | - | 180,140 | 4.2 |
| R9 | 63,255 | 66,279 | (14,095) | 14,253 | (545) | 0 | - | 65,891 | 4.2 |
| Unallocated: *Mental Health* | | | | 25,000 | | | | 25,000 | |
| Total | 4,830,032 | 4,303,344 | 0 | 530,033 | 0 | 10,000 | 508,827 | 5,352,204 | 10.8 |

## 2005/2006 RHA GLOBAL FUNDING MANUAL

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## *2004/2005 Comparable Forecast*

The 2004/2005 Comparable Forecast is used as the base for calculating the minimum guaranteed funding increase for each region. The Comparable Forecast also forms the base from which the funding growth rates for 2005/2006 are calculated.

The 2004/2005 Comparable Forecast consists of funding at April 1, 2004 ($4,749 million), plus mid-year adjustments ($174 million), less the portion of the mid year funding provided for the accumulated deficits or debt of regions ($92.5 million).

# *Population Formula Funding*

## Overview

In the past, health care funding in Alberta was directed to specific facilities, agencies or programs, and was largely determined from previous funding levels. Beginning 1997/98, Alberta adopted a global population-based RHA funding methodology to ensure each region receives its fair share of the available health dollars and is provided with the proper incentive to efficiently provide an optimal mix of health services.

Population funding develops **funding rates for different types of individuals** which are reflective of their relative health care needs, and then applies these rates to each region's population. The capitation rates are derived from actual historical health care expenditures for the different groups of individuals. Thus, a region's funding share is determined by its population size and its population mix (age, gender and socio-economic composition).

The amount of 2005/2006 funding ($4.3 billion) available for Population Formula distribution was determined as a residual after Alberta Cancer Board funding, Alberta Mental Health Board funding, and Non-Formula funding was taken out of total available Health Authority Global Funding.

## 2005/2006 Population Formula Funding - Summary

| RHA | 2005/2006 Projected Population | Net Per Capita Rate* (rounded) | General Population Formula Allocation | PPP Allocation (modified formula) | TOTAL Population Formula Funding |
|---|---|---|---|---|---|
| R1 | 156,090 | 1,541 | 240,574,151 | 9,964,801 | **250,538,952** |
| R2 | 101,980 | 1,418 | 144,563,788 | 4,923,714 | **149,487,503** |
| R3 | 1,179,925 | 1,187 | 1,400,157,714 | 54,284,002 | **1,454,441,716** |
| R4 | 297,483 | 1,357 | 403,763,684 | 17,141,662 | **420,905,346** |
| R5 | 107,166 | 1,652 | 177,087,719 | 5,594,156 | **182,681,875** |
| R6 | 1,014,667 | 1,310 | 1,329,466,944 | 51,400,031 | **1,380,866,975** |
| R7 | 171,228 | 1,290 | 220,880,631 | 12,386,356 | **233,266,987** |
| R8 | 136,464 | 1,146 | 156,429,142 | 8,447,226 | **164,876,369** |
| R9 | 75,445 | 808 | 60,978,929 | 5,299,703 | **66,278,632** |
| **Total** | **3,240,448** | **1,276** | **4,133,902,704** | **169,441,651** | **4,303,344,355** |

* The same funding capitation rates are applied to each region's population, but the overall **net** per capita rate varies by region because of the different population mix in each region.

## Population Formula Funding Methodology (6 steps)

### 1. Collect RHA Patient Activity Data

Determination of capitation funding rates requires regional health care expenditures to be assigned to individual demographic groups. The first step in this pursuit is the collection of comprehensive RHA patient activity data. For 2005/2006 funding, 2003/2004 was the most recent year for which full provincial activity data was available. Data coverage of regional health services is relatively comprehensive, although a few gaps currently exist such as much of promotion/protection/prevention (PPP) activity. Because of the limited PPP data, this sector is excluded from the general population formula, with funding allocation determined by a modified population-based formula.

**Acute hospital inpatient care** - activity data are hospital inpatient separations obtained from the 2003/2004 CIHI Inpatient Morbidity file. All acute care facilities in Alberta report monthly inpatient separations (over 340,000 records annually) to the Canadian Institute for Health Information (CIHI) through a standard set of data elements. CIHI groups the discharges into Case Mix Groups (CMGs).

After Alberta Health and Wellness receives Alberta's annual file from CIHI, several edits and adjustments are made before it is used for funding purposes. The adjustments include the standard practice of converting patient Personal Health Numbers (PHNs) to anonymous scrambled numbers to protect patient identity, and an adjustment for hospital transfers. This then requires a re-grouping of the data. Also, Province Wide Services inpatient activity is flagged and excluded from Global Funding calculations.

**Acute ambulatory care** - all acute care facilities in the province report ambulatory care visits to Alberta Health and Wellness through the Ambulatory Care Classification System (ACCS), which forms the ambulatory care funding activity dataset. The 2003/2004 ACCS database contains over six million records. As for hospital inpatient activity, Province Wide Services (e.g. dialysis) are flagged and excluded from the ACCS funding database.

**Long term care** - activity data are obtained from the Resident Classification System (RCS): all residents of provincial continuing care facilities and supportive housing are classified once a year ("snapshot") using a standard format. The RCS data reported to Alberta Health and Wellness place a client into one of seven classification categories (A to G) representing increasing acuity levels or resources needed for care. RCS data used for 2005/2006 funding were collected from the Fall 2003 classification involving 12,732 residents.

**Home care** - activity data are obtained from the Home Care Information System (HCIS): all RHAs report monthly home care data through a standard set of data elements. The data are client specific and include demographic, client classification and service information (self-managed care and six service types - assessment, case co-ordination, direct professional, personal care, home support, indirect services). The activity data used for 2005/2006 funding are the HCIS 2003/2004 hours paid. Services provided under the Children With Complex Health Needs program are excluded because these are funded through Province Wide Services.

**Community lab** - under population-based funding, expenditures on lab services for hospital patients are bundled into the inpatient and outpatient RHA activity pools. However, funding allocation must also take into account non-hospital or community patient lab tests ordered from physician offices. Community lab data (22 million records mostly on a CLPL basis) for 2003/2004 were collected from the nine health regions through a special data request. Although standardized reporting was sought, there is some non-uniformity in the data.

## 2. Attach Relative Cost Weights

Step two in the population allocation methodology is to convert all of the patient activities collected in step one into an RHA expenditure. To determine expenditure, relative resource weights are first attached to each activity record (the relative values are then properly weighted in step three).

**Acute hospital inpatient care** - weighting of activity (CMGs) employs Resource Intensity Weights (RIWs) which CIHI calculates and attaches to each CMG separation on the Morbidity file. The RIWs are derived from Canadian cost records. Since Alberta currently supplies nearly three-fifths of the costing records used by CIHI, the RIWs largely reflect the Alberta cost structure.

**Acute ambulatory care** - resource weights applied to ACCS visits are system-wide ACCS relative values derived from 2002/2003 cost information provided by three regions (Calgary, Crossroads, Edmonton), blended with cost data from the previous year (and top-ups from years before that if needed).

**Continuing care** - cost weights for the A to G patient classifications were determined several years ago for funding purposes. For 2005/2006 funding, these relative cost weights, with some inflation factor, are used:

| | | |
|---|---|---|
| A | - | $12,380.77 |
| B | - | $16,133.61 |
| C | - | $20,959.33 |
| D | - | $24,676.25 |
| E | - | $33,528.64 |
| F | - | $40,580.92 |
| G | - | $67,883.26 |

**Home care** - self-managed care is valued at actual reported costs, while the hours for the six general service types are weighted by the 2003/2004 provincial average cost rates calculated by adding up all provider costs for all regions and dividing by the total number of providers:

| | |
|---|---|
| Assessment | $ 42.77 |
| Case Coordination | $ 40.76 |
| Direct Professional | $ 40.09 |
| Personal Care | $ 14.60 |
| Home Support | $ 15.27 |
| Indirect Services | $ 36.42 |

Only the direct provider costs are included in the cost weights. Indirect costs (such as administration, travel costs, management, building depreciation) are not included because these costs are reported in varying degrees across regions and are not case specific.

**Community Lab** - Health Funding and Costing calculated a set of relative values for CLPL codes, based on cost data from Capital, Calgary and Aspen. For non-CLPL activity records, a relative value of one (i.e. the overall average cost) was assigned.

## 3. Scaling to Pool (Budget) Size

The activity data collected in step one are not entirely comprehensive of all RHA activity nor reflective of volumes in the funding year, while the resource weights in step two are only relative weights within a sector and not reflective of the full actual costs of the services in the funding year. In step three, to compensate for these deficiencies, the expenditure weights (weighted activity from steps one and two) in each sector are scaled by a single factor so that the total summed expenditure equals the total "pool" size (expected expenditure) for that sector in the funding year. This scaling is necessary to achieve proper expenditures/capitation rates for the funding year.

Sector pool sizes are determined by the total dollars available for formula funding and the historical expenditure distribution across activity areas. For 2005/2006 funding, the expenditure distribution across activity areas was based on the 2001/2002 reported regional spending pattern, as determined from Management Information System (MIS) data and an expenditure allocation methodology.

All RHAs are required to submit to Alberta Health and Wellness financial and statistical MIS data which reconcile to the RHA's audited financial statements. A program developed by Alberta Health and Wellness assigns the reported RHA operating expenditures (excluding such items as building amortization and unfunded pension accrual adjustment) to the various funding sectors. All allocations are done on a facility-specific basis and then added up to the RHA and then the provincial level. Health Funding and Costing makes a number of further adjustments to align sector expenditure to formula funded activity - for example, Province Wide Services expenditure is removed. There is ongoing improvement by Health Funding and Costing in the assignment of MIS data (expenditure allocation) to appropriate sectors.

The following funding pool sizes were calculated for 2005/2006 funding:

| **Activity Sector** | **2005/2006 Funding Pool Size ($)** | **%** |
|---|---|---|
| Acute Inpatient | 1,744.1 M | **40.5** |
| Ambulatory Care | 1,080.6 M | **25.1** |
| Continuing Care | 798.8 M | **18.6** |
| Home Care | 355.7 M | **8.3** |
| PPP | 169.4 M | **3.9** |
| Community Lab | 154.7 M | **3.6** |
| **TOTAL** | 4,303.3 M | **100.0** |

It is important not to interpret these pool sizes as targeted funding. Delineation of total funding into activity pools is done for data weighting purposes only.

## 4. Calculate Expenditure (Capitation) Rates for 124 Demographic Groups

The simplest way to distribute funding on a population basis would be straight per capita funding. However, it is well established that significant variation in health needs results from variations in age, gender and socio-economic status. For example, on average, seniors require much more health care than younger people, and individuals on social assistance generally require more health care than persons of the same age and gender not receiving social assistance.

Therefore, to more closely align funding with population health care needs, the scaled activity expenditures (steps 1-3) are assigned to 124 demographic groups to determine funding capitation rates for the different population types. The 124 demographic groups are based on 20 age groups,

2 gender groups and 4 socio-economic status groups (welfare, aboriginal, premium subsidy, other). **Appendix B** contains information on **population** (population data source, determining region of residence, the 124 demographic groups, and population projection).

All of the individual patient activity expenditures developed (steps 1-3) are assigned to one of the 124 demographic groups by linking the Personal Health Number (PHN) on each activity record to the Alberta Health Care Registry file to determine which demographic group the individual belongs to (note: scrambled PHNs are used to protect the identity of individuals at all times). Where PHNs cannot be matched to the Population Registry (less than one percent of all records), the records are excluded from the capitation funding rates calculation, although they are used for the import-export adjustments wherever possible.

The summed expenditure in each of the 124 groups is divided by the total projected Alberta population for that group to derive a provincial average per capita rate for that group, which is then used for population funding. This approach assumes that historical health care utilization serves as a proxy or measure of relative health care need, and that age, gender and socio-economic characteristics will be accurate predictors of regional variations in population health expenditure needs (or, more precisely, health expenditure risks).

The following table lists the 2005/2006 funding capitation rate (rounded) for each of the 124 demographic groups. These capitation rates vary from a low of $266 per person (*age 25-29 male regular*) to $26,165 per person (*age 90+ female*).

| 2005/2006 FUNDING CAPITATION RATES ($) | | | | | | |
|---|---|---|---|---|---|---|
| Age_Grp | Age_Desc | Sex | Regular | Premium Support | Aboriginal | Welfare |
| 00 | <01 | F | 2,147 | 2,228 | 2,703 | 3,487 |
| 01 | 01 - 04 | F | 497 | 481 | 890 | 864 |
| 02 | 05 - 09 | F | 329 | 341 | 377 | 429 |
| 03 | 10 - 14 | F | 267 | 274 | 344 | 492 |
| 04 | 15 - 19 | F | 462 | 502 | 916 | 1,453 |
| 05 | 20 - 24 | F | 619 | 871 | 1,549 | 2,765 |
| 06 | 25 - 29 | F | 885 | 957 | 1,675 | 2,978 |
| 07 | 30 - 34 | F | 987 | 892 | 1,461 | 3,579 |
| 08 | 35 - 39 | F | 813 | 781 | 1,258 | 3,602 |
| 09 | 40 - 44 | F | 647 | 733 | 1,247 | 3,916 |
| 10 | 45 - 49 | F | 675 | 912 | 1,404 | 3,675 |
| 11 | 50 - 54 | F | 789 | 1,058 | 1,618 | 4,977 |
| 12 | 55 - 59 | F | 949 | 1,562 | 2,159 | 5,224 |
| 13 | 60 - 64 | F | 1,238 | 1,804 | 2,991 | 5,801 |
| 14 | 65 - 69 | F | 2,237 | - | - | - |
| 15 | 70 - 74 | F | 3,377 | - | - | - |
| 16 | 75 - 79 | F | 5,389 | - | - | - |
| 17 | 80 - 84 | F | 8,924 | - | - | - |
| 18 | 85 - 89 | F | 15,505 | - | - | - |
| 19 | 90+ | F | 26,165 | - | - | - |
| 00 | <01 | M | 2,433 | 2,452 | 3,443 | 2,803 |
| 01 | 01 - 04 | M | 659 | 608 | 1,190 | 995 |
| 02 | 05 - 09 | M | 466 | 421 | 465 | 718 |
| 03 | 10 - 14 | M | 331 | 298 | 286 | 560 |
| 04 | 15 - 19 | M | 358 | 385 | 478 | 754 |
| 05 | 20 - 24 | M | 280 | 401 | 653 | 2,961 |
| 06 | 25 - 29 | M | 266 | 501 | 558 | 4,110 |
| 07 | 30 - 34 | M | 331 | 439 | 838 | 4,029 |
| 08 | 35 - 39 | M | 369 | 561 | 926 | 4,194 |
| 09 | 40 - 44 | M | 405 | 685 | 1,301 | 3,449 |
| 10 | 45 - 49 | M | 502 | 940 | 1,250 | 3,970 |
| 11 | 50 - 54 | M | 627 | 1,069 | 1,257 | 4,269 |
| 12 | 55 - 59 | M | 884 | 1,561 | 1,656 | 4,598 |
| 13 | 60 - 64 | M | 1,227 | 2,238 | 2,220 | 6,139 |
| 14 | 65 - 69 | M | 2,475 | - | - | - |
| 15 | 70 - 74 | M | 3,732 | - | - | - |
| 16 | 75 - 79 | M | 5,295 | - | - | - |
| 17 | 80 - 84 | M | 8,301 | - | - | - |
| 18 | 85 - 89 | M | 13,540 | - | - | - |
| 19 | 90+ | M | 21,981 | - | - | - |

## 5. Apply Capitation Rates to Each Region's Projected Population

The 124 derived capitation rates are applied to each region's projected population (see Appendix B) to determine regional funding allocations. In other words, funding for each region is determined by multiplying the projected number of individuals in that region in each of the 124 demographic groups by the corresponding capitation rate (estimated provincial average health expenditures per person).

Because the capitation rates vary by demographic group, and because the demographic composition differs by region, a different *overall* per capita funding rate occurs for each Regional Health Authority. Northern regions tend to have the lowest overall per capita funding because of their younger populations, while East Central and Chinook regions have the highest per capita funding because of their higher proportion of seniors.

## 6. Protection, Prevention and Promotion Allocation

The Protection, Prevention and Promotion (PPP) funding pool covers:

- ***Health Protection*** - immunizations, communicable disease control, chronic disease programs, environmental health, dental health, community relations, sexual and reproductive care.
- ***Community Health Services*** - community health nursing, family planning, health promotion/education, breast screening, drug awareness, mental heath promotion, pre-natal teaching, public health, nutrition, school health, etc.

Because of limited data for promotion/protection/prevention activity, this sector is excluded from the general population formula. A separate allocation of the dollars in this funding pool is determined by a modified population formula, with no import-export.

The first step in this funding allocation is to split the PPP funding pool into three broad age group categories based on proportions estimated by Alberta Health and Wellness:

| | **Split** |
|---|---|
| Age 0-19 | 62% |
| Age 20-64 | 26% |
| Age 65+ | 12% |
| **Total** | **100%** |

Next, for each RHA, the socio-economic population in each of the three broad age groups are weighted according to the scheme below. Again, this weighting scheme (relative utilization by socio-economic group) was based on the judgement of those involved with this health service area:

| | Weighting |
|---|---|
| Regular | 1 |
| Subsidy | 2 |
| Aboriginal | 5 |
| Welfare | 5 |

Finally, each region's share of the three funding age sub-pools is determined by its share of the estimated provincial weighted population. This led to the following allocations of the Protection, Promotion and Prevention pool:

**2005/2006 Protection, Promotion and Prevention Funding Pool Allocation**

| RHA | PPP Allocation | % Share |
|---|---|---|
| **R1** | 9,964,801 | 5.9 |
| **R2** | 4,923,714 | 2.9 |
| **R3** | 54,284,002 | 32.0 |
| **R4** | 17,141,662 | 10.1 |
| **R5** | 5,594,156 | 3.3 |
| **R6** | 51,400,031 | 30.3 |
| **R7** | 12,386,356 | 7.3 |
| **R8** | 8,447,226 | 5.0 |
| **R9** | 5,299,703 | 3.1 |
| **Total** | **169,441,651** | **100.0** |

# *Import-Export Funding Adjustments*

## Overview

Since population funding is allocated solely according to the population residing in a region, import-export adjustments are made to compensate for the health services provided to individuals outside of their home region. Such activity accounts for about nine percent of total regional health care activity (dollar basis) in the province.

## Import-Export Funding Methodology

### 1. Identification of Import-Export Activity

The first step in calculating import-export adjustment is to identify inter-regional activity from the activity data sets used for population funding. For 2005/2006 funding, 2003/2004 activity data sets were available for each RHA sector (except for protection, prevention and promotion). As explained previously, the scaling of calculated 2003/2004 activity expenditure up to the total budget pool compensates for any non-reported activity (including import-export) as well as volume increases up to the funding year.

An import-export is identified for any activity where the region of service (as determined by the facility number or service location on the activity record) is different from the region of patient residence (as determined by linking the individual to the Population Registry file on March 31, 2004). For services where the region of patient residence is not determinable, it is assumed they are local cases and not subject to import-export adjustment.

For hospital inpatient services, Province Wide Services are excluded from import-export, as well as the forensic psychiatry program at Calgary's Peter Lougheed Hospital which is funded outside of RHA Global Funding.

For continuing care, identification of import-export is more complicated. For residents classified twice by the Resident Classification System in different facilities, only the second classification is considered. Also, the region of residence for import-export (but not for general funding allocation) is set as the region in which the person lived (mailing address) one year prior to admission to the continuing care facility system. Prior residency is checked for AHCIP registrations going back to April 1, 1984, which covers the large majority of continuing care residents. For those records where the provider RHA differs from the patient RHA one year prior to admission, an import-export service is identified. For resident records that do not have an AHCIP registration number one year prior to admission, no import-export identification is made.

For home care, no import-export activity is identified for 2005/2006 funding.

For Health Link, 2003/2004 import-export activity was identified from Capital and Calgary files

provided to Alberta Health and Wellness. The data showed 32.6% of the calls for Capital Health Link coming from outside the region, while Calgary's import proportion was only 9.25%. The highest utilization rates (calls per 1,000) were for residents of Capital (277), Peace Country (246) and Calgary (212).

## 2. Valuation of Import-Export Activity

The next step is to value the identified import-export activity. The valuation methodology used is generally the same as for the funding capitation rates, i.e. expenditure weights are attached and scaled up to the sector pool size. Excluding Health Link import-export which is new for this year, total calculated import-export increased by 11.5 per cent from the previous year, which is a little less than the total population formula funding increase (12.7 per cent), which means there was a small decrease in overall import/export activity in the 2003/2004 base year.

**Hospital inpatient** - the same methodology used for the funding capitation rates (RIWs scaled by pool size) is used to value identified import-export inpatient services. However, as import-export activity does not require age gender and socio-economic identification, the total volume of activity records used to calculate import-export is slightly higher than that used for capitation funding (i.e. some activity records without a PHN cannot be used in the calculation of capitation rates, but can be used for import-export calculation where a valid Alberta postal code exists on the record to identify patient region residence). This results in a slightly lower scaling factor for import/export - the dollar multiplier for the 2003/2004 import/export inpatient RIW is $4,472.70 (rounded).

**Ambulatory care** - again, the same methodology used for the funding capitation rates (ACCS cell expenditures scaled by pool size) is used to value identified import-export services, with a slightly lower dollar multiplier because additional activity records can be utilized. The dollar multiplier for the 2003/2004 import-export ACCS RIW is $209.77 (rounded).

**Continuing care** - the values attached to identified import-exports are the Resident Classification System A to G expenditure weights (see page 7), not scaled by pool size because of concerns about the accuracy of the estimated total continuing care pool size, less the continuing care capitation funding rate already received by the service region because that person is included in that region's resident population. As explained previously, for Population Formula allocation, patients in continuing care facilities are considered as residents of the region in which the facility is located. However, for import-export identification, the region of residence is defined as the region where the person lived one year prior to their admission to the continuing care facility system. Because the region where the facility is located is already the recipient of the general Population Formula Funding (capitation rate) for that person, the continuing care component of the capitation rate is adjusted out of any import compensation it also receives.

**Community lab** - the dollar multiplier for the 2003/2004 import-export Community Lab RIW is $6.56 (rounded).

**Health Link** - calls are valued at the average operating cost of Capital ($2.20 per minute) and Calgary ($2.43 per minute). A provincial average cost was not developed, nor a multiplier to inflate the 2003/04 data to the funding year, as per standard population funding methodology, as the Health Link import-export was set up more as a cost recovery system.

## 3. Application of Import-Export to Regional Funding Allocations

The value of each identified import-export activity is assigned to the region where the service is provided (import), and deducted from the region where the patient comes from (export). Thus, summed import-export adjustments over all nine regions is zero - total imports (positive) equal total exports (negative). However, individual RHAs get an overall net positive or negative adjustment depending on whether they are a net-importer or net-exporter of regional health services. Both Calgary and Capital RHAs service a significant number of patients from other regions, and therefore are the recipients of a large *positive* net import-export adjustment ($54 million and $160 million, respectively). All other regions receive an overall *negative* net import-export adjustment.

### 2005/2006 Import-Export Funding Adjustments

| | Inpatient | | | Ambulatory Care | | |
|---|---|---|---|---|---|---|
| RHA | Import | Export | Net | Import | Export | Net |
| 1 | 7,241,001 | 15,326,804 | (8,085,803) | 5,043,389 | 8,488,867 | (3,445,478) |
| 2 | 3,144,717 | 13,686,308 | (10,541,590) | 1,640,717 | 7,688,587 | (6,047,871) |
| 3 | 52,499,924 | 17,498,129 | 35,001,796 | 29,721,138 | 11,733,165 | 17,987,973 |
| 4 | 14,206,891 | 48,991,716 | (34,784,825) | 8,759,253 | 26,552,120 | (17,792,867) |
| 5 | 7,646,738 | 30,878,884 | (23,232,145) | 5,205,703 | 14,809,047 | (9,603,344) |
| 6 | 127,892,443 | 18,201,644 | 109,690,799 | 58,850,477 | 13,665,871 | 45,184,605 |
| 7 | 6,754,012 | 53,129,641 | (46,375,630) | 6,670,408 | 24,618,090 | (17,947,682) |
| 8 | 4,845,424 | 17,387,942 | (12,542,517) | 4,151,044 | 8,408,442 | (4,257,398) |
| 9 | 1,627,597 | 10,757,681 | (9,130,084) | 2,045,114 | 6,123,053 | (4,077,939) |
| **TOT** | **225,858,749** | **225,858,749** | **0** | **122,087,243** | **122,087,243** | **0** |

| | Continuing Care | | | Community Lab | | |
|---|---|---|---|---|---|---|
| RHA | Import | Export | Net | Import | Export | Net |
| 1 | 1,505,465 | 1,186,050 | 319,416 | 353,717 | 305,209 | 48,508 |
| 2 | 1,197,662 | 903,351 | 294,311 | 146,574 | 349,365 | (202,790) |
| 3 | 5,035,422 | 4,364,510 | 670,912 | 829,032 | 1,380,543 | (551,511) |
| 4 | 4,751,020 | 4,844,042 | (93,022) | 1,096,358 | 1,513,755 | (417,397) |
| 5 | 4,108,196 | 3,129,820 | 978,376 | 369,076 | 1,137,167 | (768,091) |
| 6 | 6,967,397 | 8,822,094 | (1,854,697) | 5,116,031 | 1,308,230 | 3,807,800 |
| 7 | 3,848,514 | 3,924,900 | (76,386) | 713,839 | 2,123,613 | (1,409,774) |
| 8 | 1,209,244 | 1,062,514 | 146,730 | 253,021 | 665,779 | (412,757) |
| 9 | 170,611 | 556,251 | (385,641) | 332,299 | 426,287 | (93,988) |
| **TOT** | **28,793,531** | **28,793,531** | **0** | **9,209,947** | **9,209,947** | **0** |

| | Health Link | | | TOTAL 2005/06 Import-Export Adjustments | | |
|---|---|---|---|---|---|---|
| RHA | Import | Export | Net | Import | Export | Net |
| 1 | 0 | 377,367 | (377,367) | 14,143,572 | 25,684,296 | **(11,540,724)** |
| 2 | 0 | 377,943 | (377,943) | 6,129,670 | 23,005,553 | **(16,875,883)** |
| 3 | 803,411 | 29,700 | 773,710 | 88,888,927 | 35,006,047 | **53,882,880** |
| 4 | 0 | 1,169,251 | (1,169,251) | 28,813,523 | 83,070,884 | **(54,257,361)** |
| 5 | 0 | 413,621 | (413,621) | 17,329,713 | 50,368,539 | **(33,038,826)** |
| 6 | 3,548,292 | 11,721 | 3,536,571 | 202,374,640 | 42,009,561 | **160,365,079** |
| 7 | 0 | 729,220 | (729,220) | 17,986,772 | 84,525,464 | **(66,538,692)** |
| 8 | 0 | 835,489 | (835,489) | 10,458,733 | 28,360,165 | **(17,901,432)** |
| 9 | 0 | 407,391 | (407,391) | 4,175,621 | 18,270,663 | **(14,095,042)** |
| **Total** | **4,351,703** | **4,351,703** | **0** | **390,301,172** | **390,301,172** | **(0)** |

# *Funding Adjustments*

## Overview

Some RHA Global Funding is provided outside of the population formula. There are several possible reasons for having non-formula funding in addition to population formula funding:

- where sufficient data does not exist for a proper population formula allocation
- to compensate for geographical variances in health care needs beyond that determined from differences in demographic composition (diagnostic imaging adjustment, rural dialysis)
- to compensate for variances in RHA unit costs, because the formula provides the same provincial average per capita funding rates to each RHA (cost adjustment factor)
- where targeted funding is desirable (acute care coverage, alternate payment plans, western Canada heart network, residents services allowances, academic health services, mental health funding, long term care nursing hour increase).
- adjustments to population funding to guarantee a minimum total funding increase from the previous year (minimum guarantee adjustments).

Non-formula funding adjustments for 2005/2006 total $530.0 million.

## 2005/2006 Non-Formula Funding Adjustments

| RHA | Mental Health | Cost Adjustment Factor | Residents Allowance | Mental Health Transition | Academic Health Centres | Diagnostic Imaging Adjustment |
|---|---|---|---|---|---|---|
| 1 | 8,975,647 | 0 | - | - | - | 1,522,618 |
| 2 | 4,488,397 | 1,188,770 | - | - | - | 1,180,867 |
| 3 | 52,393,091 | 49,668,416 | 23,430,904 | - | 9,601,588 | 0 |
| 4 | 71,446,280 | 0 | - | - | - | 4,489,623 |
| 5 | 4,706,938 | 0 | - | - | - | 1,364,621 |
| 6 | 97,044,901 | 51,209,581 | 30,387,958 | - | 11,149,582 | 0 |
| 7 | 8,740,754 | 4,138,177 | - | - | - | 2,400,028 |
| 8 | 5,789,785 | 10,371,250 | - | - | - | 3,579,925 |
| 9 | 2,324,332 | 9,920,860 | - | - | - | 1,537,391 |
| Unallocated | | | | 25,000,000 | | |
| **TOTAL** | **255,910,126** | **126,497,054** | **53,818,862** | **25,000,000** | **20,751,170** | **16,075,072** |

| RHA | Acute Care Coverage | Alternate Payment Plan | MH Leases Transfer | Rural Dialysis | Western Canada CHN | TOTAL |
|---|---|---|---|---|---|---|
| 1 | 874,024 | 527,347 | 0 | 579,536 | - | **12,479,172** |
| 2 | 503,368 | 33,654 | 16,433 | 301,434 | - | **7,712,923** |
| 3 | 5,482,900 | 6,125,189 | 1,311,990 | 0 | - | **148,014,078** |
| 4 | 1,166,636 | 63,549 | 607,618 | 966,116 | - | **78,739,822** |
| 5 | 0 | 0 | 80,060 | 131,329 | - | **6,282,948** |
| 6 | 5,999,500 | 4,812,490 | 473,927 | 0 | 160,000 | **201,237,939** |
| 7 | 0 | 0 | 57,791 | 219,664 | - | **15,556,413** |
| 8 | 583,470 | 0 | 268,026 | 164,347 | - | **20,756,803** |
| 9 | 390,102 | 18,994 | 0 | 61,277 | - | **14,252,956** |
| Unallocated | | | | | | 25,000,000 |
| **TOTAL** | **15,000,000** | **11,581,223** | **2,815,845** | **2,423,703** | **160,000** | **530,033,054** |

### Mental Health Funding ($255,910,126)

Selected community and facility mental health services were divested from the Alberta Mental Health Board to RHAs beginning April 1, 2003. For 2005/2006, the Mental Health funding envelope ($255,910,126) was determined by applying a 10.8 per cent growth rate to 2004/2005 funding ($230,965,818). The same regional distribution was maintained as in 2004/2005, except for a transfer of $33,000 from Calgary RHA to Chinook RHA related to the Southern Alberta Mental Health Distress Line.

## Cost Adjustment Factor ($126,497,055)

The population funding formula applies the same per capita funding rates (assuming provincial average costs) to each RHA population. The Cost Adjustment Factor is then applied to compensate for cost factors outside of RHA control which result in above-average service delivery costs in some regions. The Cost Adjustment Factor consists of separate adjustments for inpatient and non-inpatient services:

For **hospital inpatient** services, the Cost Adjustment Factor is based on a statistical measurement of regional cost variations, using data primarily from the 2001/2002 fiscal year. Regression analysis was used to quantify the impact of various explanatory factors (such as patient remoteness) on regional inpatient costs (MIS determined) per standardized unit of output (RIW). The results were then used to predict regional cost variances from justifiable factors. When converted to an index (all regions = 1.0), the individual regional cost indices ranged from a low of 0.79 for East Central, to 1.154 for Calgary. Only three regions (Calgary, Capital, Northern Lights) have a cost index above the provincial average. The result for the two urban regions is largely due to the higher costs from their large teaching hospitals.

For 2004/2005 funding, the Northern Allowance, provided particularly for the cost of secondary services in small regional hospitals, was consolidated into the Cost Adjustment Factor in the form of an increase to the Cost Index (+.1172 for Peace Country RHA, and +.3839 for Northern Lights RHA). Given the better results for the Cost Adjustment Factor for 2005/2006 funding, these Northern Allowance adjustments have been halved.

The cost variation for each region is applied to the region's 2005/2006 hospital inpatient utilization (provincial average), adjusted for import-export, as determined by the funding formula, to determine the Cost Adjustment Factor amounts. These amounts were then discounted by 50 per cent given concerns about the preciseness of the cost variation calculations.

For **non-inpatient** RHA services, the historical Cost of Doing Business and Assured Access methodologies are applied to determine additional cost adjustments. Cost of Doing Business - a cost supplement of 25 per cent is applied for Regions 8 and 9, and a cost supplement 18.5 per cent for Region 7, on their non-salary non-inpatient budget (estimated to be 25% of their 2005/2006 non-inpatient provincial average utilization, adjusted for import-export). Starting with 2004/2005 finding, the Northern Allowance for Aspen was consolidated into the Cost Adjustment Factor in the form of an increase to the Cost of Doing Business Factor (increased from 12.5% to 18.5% for Aspen RHA). Assured Access - for the remote population in each region, a cost supplement is calculated by applying special rates of 25 per cent (for remote population) and 50 per cent (for very remote population) to the average non-inpatient per capita funding rate. Determination of remote population is based on 2001 Census data, utilizing the previously established Assured Access methodology.

The results from the above calculations (inpatient and non-inpatient cost adjustment factors) were combined for each RHA, and all negative sums set to zero:

**Table A - Inpatient Sector**

| RHA | 2005/2006 Inpatient Utilization (SM) | Cost Variation Index | Cost Adjustment Factor (SM) | 50% Discounted Factor (SM) |
|---|---|---|---|---|
| | (a) | (b) | (a) x (b) = (c) | 0.5 x (c) |
| R1 | 93.8 | -0.11 | -10.6 | -5.3 |
| R2 | 50.1 | -0.06 | -3.1 | -1.6 |
| R3 | 640.2 | 0.15 | 98.6 | 49.3 |
| R4 | 137.4 | -0.21 | -28.8 | -14.4 |
| R5 | 49.7 | -0.16 | -8.1 | -4.0 |
| R6 | 682.6 | 0.15 | 102.4 | 51.2 |
| R7 | 49.8 | -0.21 | -10.3 | -5.1 |
| R8 | 56.8 | -0.02 | -0.9 | -0.4 |
| R9 | 18.8 | 0.31 | 5.8 | 2.9 |
| | 1,779.2 | | | 72.5 |

**Table B - Remaining Sectors (Cost of Doing Business)**

| RHA | 2005/2006 Non-IP Utilization (SM) | Supplies Portion 25% (SM) | Cost of Doing Bus Adjustment Factor | Cost of DB Adjustment Factor (SM) |
|---|---|---|---|---|
| | (a) | .25 x (a) = (b) | (c) | (b) x (c) |
| R1 | - | - | - | - |
| R2 | - | - | - | - |
| R3 | - | - | - | - |
| R4 | - | - | - | - |
| R5 | - | - | - | - |
| R6 | - | - | - | - |
| R7 | 121.0 | 30.2 | 0.185 | 5.6 |
| R8 | 94.0 | 23.5 | 0.25 | 5.9 |
| R9 | 34.9 | 8.7 | 0.25 | 2.2 |
| | 249.9 | | | 13.7 |

**Table C - Remaining Sectors (Assured Access)**

| RHA | Remote Population | Very Remote Population | Assured Access Funding Rate | A. Access Adjustment Factor (SM) |
|---|---|---|---|---|
| | (a) | (b) | | (a) x (c) + (b) x (d) |
| R1 | 2,355 | 268 | (c) $201.41 | 0.6 |
| R2 | 5,383 | 4,118 | remote | 2.7 |
| R3 | 1,824 | 15 | | 0.4 |
| R4 | 8,011 | 4,027 | (d) $402.82 | 3.2 |
| R5 | 4,205 | 271 | very remote | 1.0 |
| R6 | 65 | 0 | | 0.0 |
| R7 | 8,460 | 4,876 | | 3.7 |
| R8 | 11,692 | 6,402 | | 4.9 |
| R9 | 6,447 | 8,804 | | 4.8 |
| | 48,442 | 28,781 | | 21.4 |

**Table D - TOTAL (SUMMED) COST ADJUSTMENT FACTOR**

| RHA | Total Cost Adjustment Factor (SM) | Negatives set to Zero (SM) |
|---|---|---|
| R1 | -4.7 | 0 |
| R2 | 1.2 | 1.2 |
| R3 | 49.7 | 49.7 |
| R4 | -11.2 | 0 |
| R5 | -3.1 | 0 |
| R6 | 51.2 | 51.2 |
| R7 | 4.1 | 4.1 |
| R8 | 10.4 | 10.4 |
| R9 | 9.9 | 9.9 |
| | 71.3 | 126.5 |

## Residents Services Allowances ($53,818,862)

These funds are paid to Capital Health and the Calgary Health Region for remunerating medical residents providing services to teaching hospitals as part of their medical education.

**Mental Health Transition ($25,000,000)**

The government has committed to new funding for the Mental Health system as it transitions towards the objectives established by the Provincial Mental Health Plan.

**Academic Health Centres ($20,751,170)**

Funding to Calgary and Capital for remunerating academic physicians for some of their teaching and research activities within academic health centres.

**Diagnostic Imaging Adjustment ($16,075,072)**

The population formula provides each RHA with funding for the estimated provincial average utilization of regional health services, including provincial average diagnostic imaging (DI). However, because of varying regional access to private DI clinics, where the DI is paid for out of the physician fee-for-service pool, some regions require less than the provincial average DI expenditure while other regions require more. Thus, a DI Adjustment was introduced in 2000/2001 to compensate for the different population needs for RHA DI services, as measured from radiology fee-for-service claims. The intent was to also remove financial incentives for RHAs to encourage private DI services. Beginning 2001/2002, the negative adjustments for Calgary and Capital were removed.

**Acute Care Coverage ($15,000,000)**

Starting 2001/2002, certain RHAs with larger hospitals are to receive $15 million on a continuing basis to address patient coverage needs in acute care hospitals. Funding can be used for expansion of existing programs and/or establishment of new programs and services involving physicians, nurses, clinical assistants, medical residents and/or nurse practitioners. This funding is administered by the Health Workforce Division of Alberta Health and Wellness.

**Alternate Payment Plan ($11,581,223)**

With regionalization, the Alberta Health contracts with individual physicians were divested to certain regions (Calgary, Capital, Chinook, David Thompson, Palliser, Northern Lights), along with special funding to cover the contracts. These historical allocations have continued.

**Mental Health Leases Transfer ($2,815,845)**

Previously, the Ministry of Infrastructure and Transportation provided accommodation for mental health facilities across the province. Effective April 1, 2005, responsibility for the leases and respective budgets is transferred to the RHAs to allow them to effectively manage the mental health programs.

**Rural Dialysis Funding ($2,423,703)**

All renal dialysis costs for Calgary and Capital are funded outside of RHA Global Funding through the Province Wide Services program. However, rural RHAs incur "hospitality" support costs (lab procedures, environmental services, etc.) for the satellite dialysis in their region. These

support costs were historically been borne by rural RHAs out of their global funding. To achieve equitable treatment for all regions, non-formula funding now covers the dialysis support costs of rural regions. For 2005/2006, this funding is based on an estimated rural RHA support cost of $35.08 per projected rural hemodialysis satellite run.

### Western Canadian CHN ($160,000)

Funding to Capital Health for the Western Canadian Children's Heart Network which works towards providing quality paediatric cardiac care to all children in western Canada.

## *Minimum Guarantee Adjustments*

As in previous years, each RHA is guaranteed a minimum funding increase (4.0% for 2005/2006) from their previous year comparable funding, prior to Province Wide Services funding and the new funding for the Long Term Care nursing hour increase. This guarantee required funding top-ups (positive minimum guarantee adjustments) totaling $35.3 million for three regions (Regions 5, 7, 8), the money for which was re-distributed on a proportional basis from the other six RHAs in the form of negative minimum guarantee adjustments.

## *Other Funding Adjustments*

New funding ($10.0 million) is provided in 2005/2006 for an increase in **Long Term Care paid nursing hours per patient**. The funding is provided after the Minimum Guarantee adjustment to ensure those regions getting the minimum guaranteed increase also get this new funding in addition.

**Province Wide Services** funding ($508.8 million) is now included in RHA Global Funding. These highly specialized services are provided to all Albertans by the Calgary and Capital health authorities. They are funded outside of population formula funding for a number of reasons.

# Appendix A - FUNDING COMPARISON WITH PRIOR YEAR

| 2005/2006 FUNDING | 2004/2005 FUNDING |
|---|---|
| **Population**<br>active AHCIP registrations as of March 31, 2004, projected to September 30, 2005, and scaled to an overall annual provincial population increase of 1.6% for 2005/2006 | **Population**<br>active AHCIP registrations as of March 31, 2003, projected to September 30, 2004, and scaled to an overall annual provincial population increase of 1.5% for 2004/2005 |
| **Activity Data**<br>1. *hospital inpatient*: 2003/2004 Morb File CMGs<br>2. *ambulatory care*: 2003/2004 ACCS visits (6.8 million records)<br>3. *continuing care*: Fall 2003 Resident Classification patients<br>4. *home care*: 2003/2004 HCIS provider hours<br>5. *community lab*: 2003/2004 tests from special data request<br>6. *HealthLink*: 2003/2004 files from Capital and Calgary RHAs | **Activity Data**<br>1. *hospital inpatient*: 2002/2003 Morb File CMGs<br>2. *ambulatory care*: 2002/2003 ACCS visits (6.2 million records)<br>3. *continuing care*: Fall 2002 Resident Classification patients<br>4. *home care*: 2002/2003 HCIS provider hours<br>5. *community lab*: 2002/2003 tests from special data request |
| **Relative Cost Weights**<br>1. *hospital in-patient*: CIHI *CMG/Plx 2003 PC Grouper V2.0* with new 2003 and 2004 values.<br>2. *ambulatory care*: SWRV weights based on 2002/2003 cost data from Calgary and Capital<br>3. *continuing care*: A to G values (with some inflation)<br>4. *home care*: 2003/2004 HCIS provincial average direct hourly cost for provider types<br>5. *community lab*: RVIs derived by Health Funding and Costing | **Relative Cost Weights**<br>1. *hospital in-patient*: CIHI RIW 2002<br>2. *ambulatory care*: SWRV weights based on 2001/2002 activity data from Calgary and Capital<br>3. *continuing care*: A to G values (with some inflation)<br>4. *home care*: 2002/2003 HCIS provincial average direct hourly cost for provider types<br>5. *community lab*: RVIs derived by Health Funding and Costing |
| **Pool Size (for scaling expenditure weights)**<br>1. total formula funding pool = $4,303 million<br>2. sector distribution of total pool based on 2001/2002 MIS expenditure allocation | **Pool Size (for scaling expenditure weights)**<br>1. total formula funding pool = $3,817 million<br>2. sector distribution of total pool based on 2001/2002 MIS expenditure allocation |
| **PPP Allocation**<br>PPP pool divided into 3 age sub-pools (age 0-19 62%; age 20-64 26%; age 65+ 12%) for allocation to RHAs on basis of weighted population | **PPP Allocation**<br>PPP pool divided into 3 age sub-pools (age 0-19 62%; age 20-64 26%; age 65+ 12%) for allocation to RHAs on basis of weighted population |

| | |
|---|---|
| **Non-Formula (Line Items) Funding**<br><br>Revised Inpatient Cost Adjustment Factor.<br>New non-formula funding for Mental Health Transition and Mental Health Leases. | **Non-Formula (Line Items) Funding**<br><br>Northern Allowance incorporated into Cost Adjustment Factor.<br>New non-formula items are Non-Metro IT Initiative, Offset of Acquired Deficits, and Continuing Care Information System Project. |
| **Import-Export**<br><br>1. Identified activity from 2003/2004 data. No import-export activity identified for home care.<br>2. New import/export for Health Link.<br>3. Inpatient RIW multiplier of $4,473. | **Import-Export**<br><br>1. Identified activity from 2002/2003 data. No import-export activity identified for home care.<br>2. Inpatient RIW multiplier of $3,970. |
| **Minimum Guarantee**<br><br>Each RHA guaranteed a 4% funding increase from previous year (2004/2005), prior to new funding adjustments. | **Minimum Guarantee**<br><br>Each RHA guaranteed a 4% funding increase from previous year (2003/2004), prior to new funding adjustments. |

## Population Data Source

The population data source for the funding model, as chosen several years ago by a ministerial committee on funding, is the AHCIP *Population Registry* file. The *Population Registry* file is generated from the *Stakeholder Registry System*, which was designed primarily for Alberta Health Care Insurance Plan premium billing purposes. The Population Registry includes all known residents of Alberta that have been determined to be eligible for Health Care Insurance coverage. It excludes some residents, such as the RCMP and military service personnel, whose health care is paid for by the Federal Government.

Various sources are used to maintain the AHCIP registration data, and information is updated daily. Alberta Health and Wellness currently processes retroactive changes to the file as far back as 24 months.

The base population data used in calculating the 2005/2006 RHA funding capitation rates is the Registry population as of March 31, 2004, as seen four months later at July 31. A four month lag for adjustments is necessary to allow for the bulk of retroactive adjustments. Included on the Registry file for registered residents are:

- address
- gender
- date of birth
- some socio-economic elements (e.g. eligibility for premium assistance, or coverage as a member of Health Canada's Treaty Indian group)

Individuals receiving social service benefits - one of the four socio-economic groups used for Population Based Funding - are identified from a data file received from Alberta Family and Social Services for March 31 (only those individuals listed in specific support categories). Also, physical residency addresses were obtained for the majority of Public Trustee clients, whose billing address on the Population Registry file is simply a Public Trustee office.

All registrations with the necessary data elements are included in the calculation of the expenditure and funding capitation rates, but population funding is only provided for **active** registrations with identified age, gender, socio-economic status and RHA residence. Registration records without an RHA or age identifier are excluded.

## Population Residency

When Alberta's RHAs were originally created, there was a requirement to be able to assign each Alberta health care registrant to an RHA based on the residency of the registrant. After reviewing various options to achieve this requirement, it was determined that using the postal code from the registrant mailing address provided the most viable, although not totally foolproof, option. A mailing address is required to register for basic health services. While a physical address field is available in the population registry, it is not a mandatory field and not fully utilized. Consequently, registrant postal codes (as at March 31) are used to determine region of residence for purposes of regional funding allocation.

For residents of continuing care facilities, the postal code is set to the postal code of the facility. For 2005/2006 funding, the Resident Classification System survey from the fall of 2003 was used for residency determination as of March 31, 2004. For health care registrants out of province (sabbatical leave, temporary employment, etc.) who only have their out-of-province address recorded in the Registry file, the last known Alberta postal code obtained from the Statistical Registration History Master is used to determine residency for Population Based Funding purposes. For registrations with Bad Address Flags, the flag is ignored and the region of residence becomes the location of the bad address postal code.

Assignment of postal codes to an RHA is not a simple or straightforward task. There are approximately 70,000 active postal codes in use in Alberta, and all of Alberta is not neatly divided up into postal code areas. Postal codes only specify to Canada Post where mail is to be delivered, which includes rural post office boxes accessed by individuals over an undefined geographic area.

Assignment of each postal code to a region by Alberta Health and Wellness is based on the "representative points" which Statistics Canada assigns to each postal code to refer to a specific geographic location (a coordinate proxy for the postal code location). For rural areas, one representative point is normally associated with each census enumeration area (in the absence of any cluster, the point is placed at the visual centre of the enumeration area), and thus it can simply be a matter of determining which census enumeration areas fall into which RHA. Where one postal code covers a large geographical area (i.e. multiple representative points) located within two or more RHAs, all registrants are assigned to a single RHA on a "best assumption" basis. In general, assignment of postal codes to a region is less reliable for rural areas where postal codes may cover mail delivery points over a large geographical area. It is also recognized that postal code may not be the most appropriate residency indicator for Population Based Funding in cases where addresses are maintained by family but the dependant's address is different.

While improvements have been explored in determining residency for the health care registrants, it should be remembered that the financial impact from mis-assigned residents is minimal, on average, for any region as a result of the import-export mechanism of regional funding. For example, even if a region does not receive Population Based Funding for one of its actual residents, it would receive an import funding adjustment for all health services which it provides to that individual. The import-export mechanism, described previously in the manual, compensates regions for residents serviced from outside of their identified region.

## Population groups

Altogether, there are 124 population groups identified for Population Based Funding. These are the result of:

- *twenty* age groups: (<1,1-4,5-9,10-14,15-19,20-24,25-29,30-34,35-39,40-44,45-49,50-54,55-59,60-64,65-69,70-74,75-79,80-84,85-89,90+)
- *two* gender groups: (male, female)
- *four* socio-economic groups:
  - aboriginal (Treaty Status) under age 65

- welfare (those receiving social assistance during the year) under age 65
- subsidy (those with subsidized health care premiums) under age 65
- other (this group represents the majority of Albertans including all persons age 65+)

Composition by socio-economic group:

| | | |
|---|---|---|
| 28 | aboriginal (under age 65) groups | [14 age groups x 2 gender groups] |
| + 28 | welfare (under age 65) groups | [14 age groups x 2 gender groups] |
| + 28 | subsidy (under age 65) groups | [14 age groups x 2 gender groups] |
| + 40 | other groups | [20 age groups x 2 gender groups] |

**= 124 population groups**

Each of these groups must be mutually exclusive for the funding model. The Registry file can only include one age or gender per individual, but it is possible that an individual could belong to more than one socio-economic group. For such cases, a decision hierarchy is imposed with the following order: aboriginal, welfare, subsidy, other.

These population groups were chosen because of the known sensitivity of health care needs to age, gender and socio-economic status. Estimated health expenditures per person are most sensitive to the *age* factor. The age group 1-19 years has an estimated average annual per capita regional health expenditure (not including PPP) of $421.52, compared to the average rate of $5,976 for the 65+ age group, which is fourteen times higher! Various age group expenditure rates are shown below:

| *age* | *average per capita rate ($)* |
|---|---|
| < 1 | 2,377 |
| 1 -19 | 422 |
| 20-44 | 627 |
| 45-64 | 916 |
| 65-69 | 2,353 |
| 70-79 | 4,349 |
| 80-89 | 10,755 |
| 90+ | 25,072 |

*Gender* is a less important determinant of health expenditure, but accounts for significant differences in the child-bearing years. On average, females in the child-bearing years incur over twice as much health care expenditure as males in the same age group (see capitation rate table on page 11).

In addition to age and gender, health expenditure needs also vary significantly by *socio-economic status* (note: the Population Formula is structured on the premise that socio-economic status is only a good predictor of health needs for the population under 65 years of age). The capitation rates are highest for those in the *welfare* group (about five times higher, on average, than the regular non premium subsidy group), followed by *aboriginal* (about two times higher than the regular group), and then *subsidy* (about 1.5 times higher than the regular group).

## POPULATION COMPOSITION – By Percentage

**(By socio-economic status)**

| As of March 31, 2004 | | Under 65 years of age | | | | |
|---|---|---|---|---|---|---|
| **RHA** | **Over 65** | **Aboriginal** | **Premium Subsidized** | **Welfare Recipients** | **Regular** | **Total** |
| **R1** | 13.5 | 7.4 | 12.3 | 3.1 | 63.7 | 100.0 |
| **R2** | 12.7 | 0.8 | 10.1 | 2.5 | 73.9 | 100.0 |
| **R3** | 9.3 | 1.8 | 8.7 | 2.2 | 78.0 | 100.0 |
| **R4** | 11.8 | 5.0 | 10.1 | 2.7 | 70.4 | 100.0 |
| **R5** | 15.5 | 0.9 | 11.8 | 2.5 | 69.3 | 100.0 |
| **R6** | 10.9 | 2.7 | 9.2 | 3.4 | 73.9 | 100.0 |
| **R7** | 10.5 | 11.2 | 10.0 | 2.5 | 65.8 | 100.0 |
| **R8** | 8.7 | 8.0 | 9.7 | 2.3 | 71.3 | 100.0 |
| **R9** | 2.7 | 14.7 | 7.1 | 1.2 | 74.2 | 100.0 |
| **Total** | **10.4** | **3.7** | **9.4** | **2.7** | **73.9** | **100.0** |

### Population Projection

Population formula funding applies capitation funding rates to each region's projected population for the funding year. For 2005/2006 funding, this required a projection of March 31, 2004 population data to September 30, 2005 (mid-point of fiscal year).

Projected annual growth of each population cell (registered persons by age, gender and socio-economic group in each community) is based on the pro-rated (12 months to 18 months) historical growth from March 31, 2003 to March 31, 2004. Projected population is then scaled by the same factor to produce an overall provincial population increase equal to the forecasted provincial population growth for 2005/2006 of 1.6%.